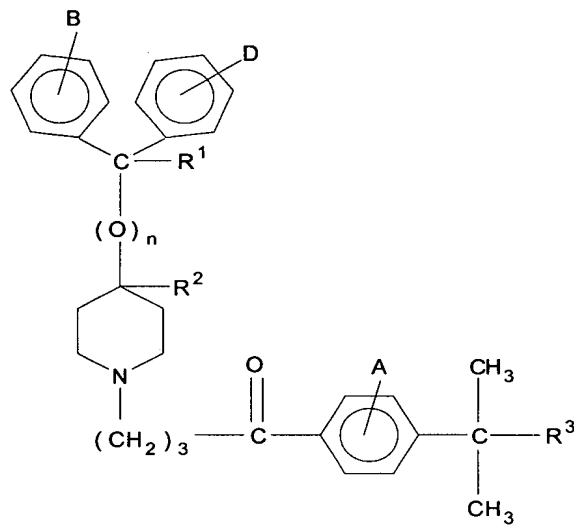


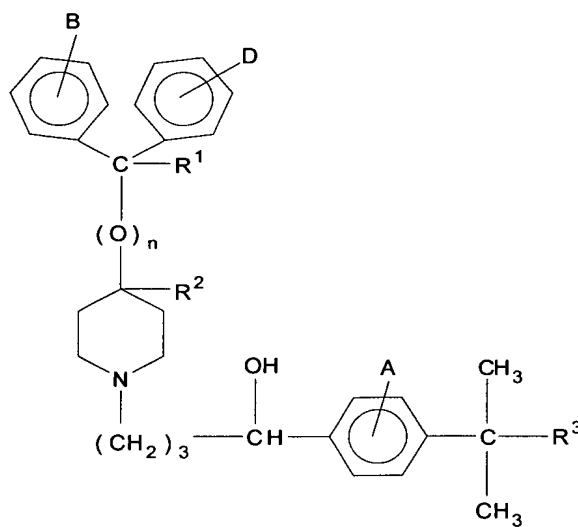
**WHAT IS CLAIMED:**

1. A process for production of a product compound having a structure according to Formulae IA and/or IB:

5



(IA)



(IB)

10

wherein

n is 0 or 1;

$R^1$  is hydrogen or hydroxy;

$R^2$  is hydrogen;

or, when  $n$  is 0,  $R^1$  and  $R^2$  taken together form a second bond between the carbon atoms bearing  $R^1$  and  $R^2$ , provided that when  $n$  is 1,  $R^1$  and  $R^2$  are each hydrogen;

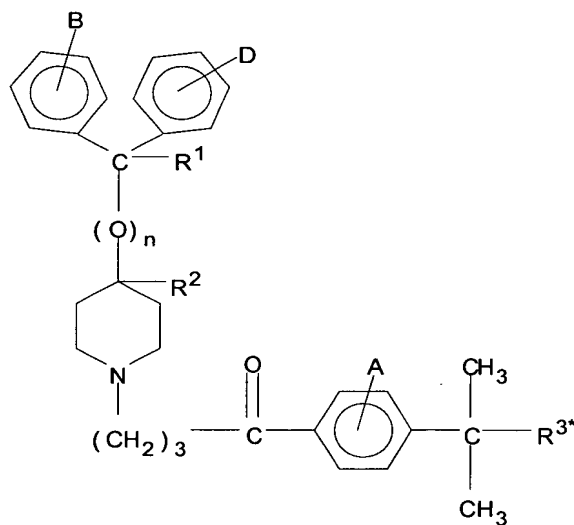
$R^3$  is  $-\text{COOH}$  or  $-\text{COOR}^4$ ;

$R^4$  is an alkyl or aryl moiety;

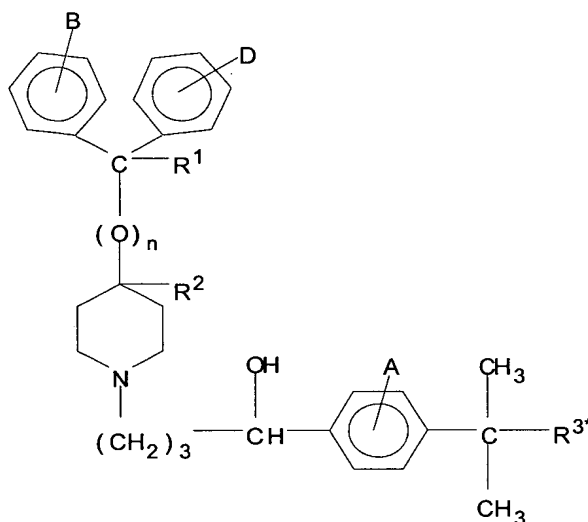
A, B, and D are the substituents of their rings, each of which may be different or the same, and are selected from the group consisting of hydrogen, halogens, alkyl, hydroxy, and alkoxy

, said process comprising:

incubating a starting compound having a structure according to Formulae IIA and/or IIB:



(IIA)



(IIB)

- wherein R<sup>3\*</sup> is -CH<sub>3</sub> and R<sup>1</sup>, R<sup>2</sup>, A, B, and D are defined above, in the
- 5 presence of a microorganism under conditions effective to produce the product compound, wherein the microorganism is from a genus selected from the group consisting of *Stemphylium*, *Gliocladium*, *Bacillus*, *Botrytis*, *Cyathus*, *Rhizopus*, *Pycniadosphora*, *Pseudomonas*, *Helicostylum*, *Mucor*, *Gelasinospora*, *Rhodotorula*, *Candida*, *Mycobacterium*, and *Penicillium*.
- 10
2. The process according to claim 1, wherein the microorganism is from the *Stemphylium* genus.
  3. The process according to claim 1, wherein the microorganism
  - 15 is from the *Gliocladium* genus.
  4. The process according to claim 1, wherein the microorganism is from the *Bacillus* genus.
  - 20 5. The process according to claim 1, wherein the microorganism is from the *Botrytis* genus.

6. The process according to claim 1, wherein the microorganism is from the *Cyathus* genus.

5 7. The process according to claim 1, wherein the microorganism is from the *Rhizopus* genus.

8. The process according to claim 1, wherein the microorganism is from the *Pycniadosphora* genus.

10 9. The process according to claim 1, wherein the microorganism is from the *Pseudomonas* genus.

10. The process according to claim 1, wherein the microorganism is from the genus *Helicostylum*.

15 11. The process according to claim 1, wherein the microorganism is from the *Mucor* genus.

20 12. The process according to claim 1, wherein the microorganism is from the *Gelasinospora* genus.

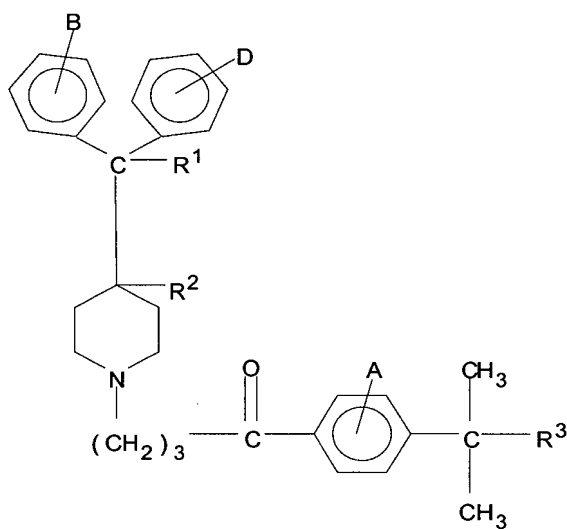
13. The process according to claim 1, wherein the microorganism is from the *Rhodotorula* genus.

25 14. The process according to claim 1, wherein the microorganism is from the *Candida* genus.

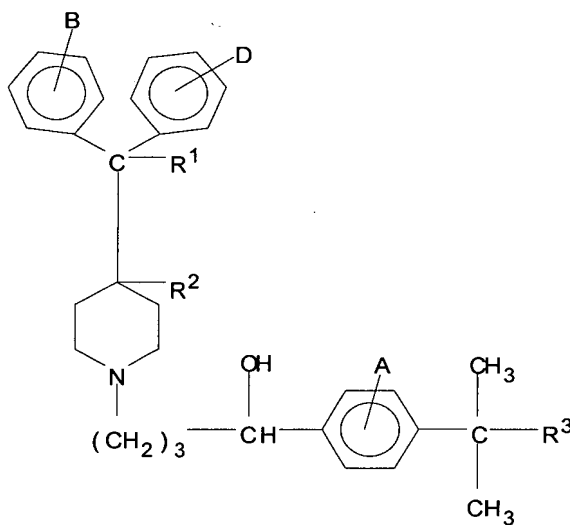
30 15. The process according to claim 1, wherein the microorganism is from the *Mycobacterium* genus.

16. The process according to claim 1, wherein the microorganism is from the *Penicillium* genus.

17. The process according to claim 1, wherein the product compound has a structure according to Formula IIIA and/or IIIB:



(IIIA)

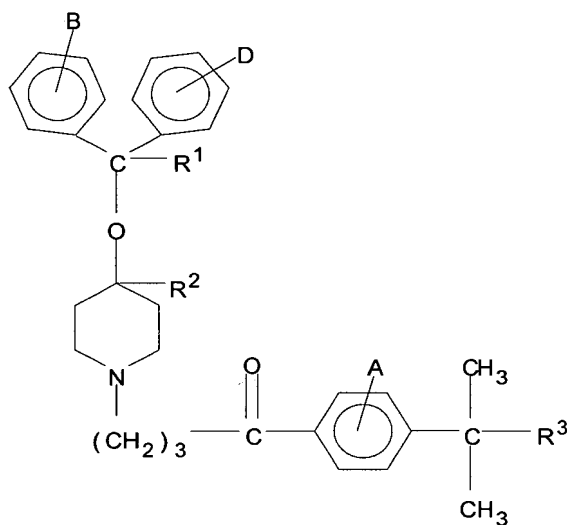


(IIIB)

wherein R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, A, B, and D are defined above.

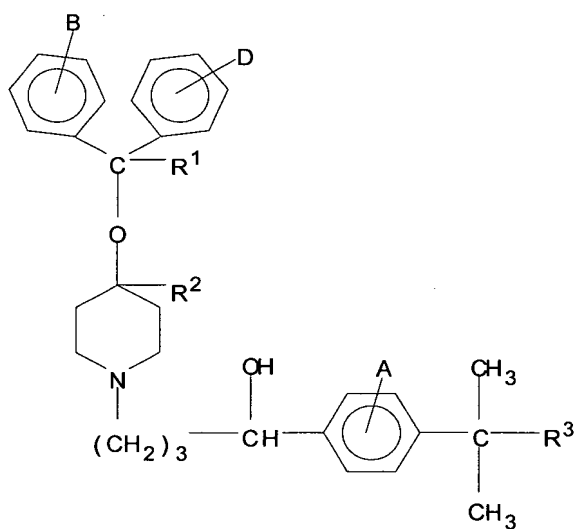
18. The process according to claim 17, wherein the product compound is 4-(4-(4-hydroxydiphenyl)-1-piperidiny)-1-hydroxybutyl)- $\alpha,\alpha$ -dimethylphenylacetic acid.

5 19. The process according to claim 1, wherein the product compound has a structure according to Formula IVA and/or IVB:



(IVA)

10



(IVB)

wherein  $R^1$ ,  $R^2$ ,  $R^3$ , A, B, and D are defined above.

5                    20.    The process according to claim 19, wherein the product compound is 4-[4-[4-diphenylmethoxy)-1-piperidiny]-oxobutyl]- $\alpha,\alpha$ -dimethylphenylacetic acid.

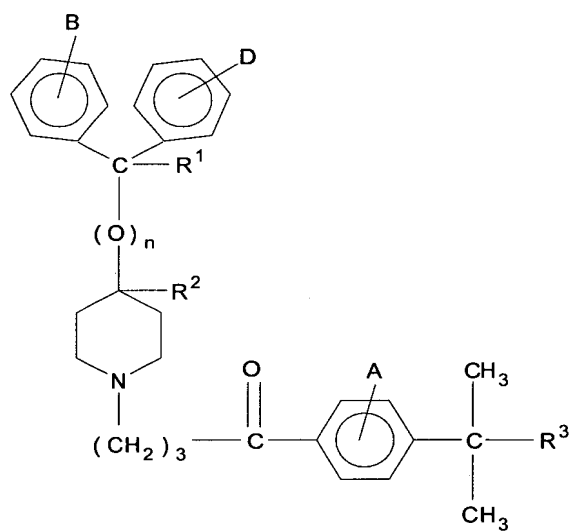
21.    The process according to claim 1, wherein said incubating is  
10    carried out at a temperature of 20°C to 80 °C.

22.    The process according to claim 1, wherein said incubating is carried out at a pH of 4 to 9.

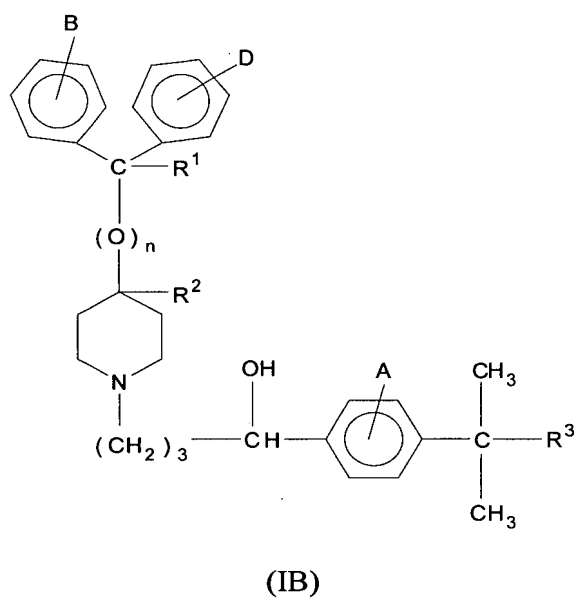
15                    23.    The process according to claim 1, wherein said incubating is carried out for a period of 2 to 240 hours.

24.    A process for production of a product compound having a structure according to Formulae IA and/or IB:

20



(IA)



5

wherein

n is 0 or 1;

R<sup>1</sup> is hydrogen or hydroxy;

R<sup>2</sup> is hydrogen;

10

or, when n is 0, R<sup>1</sup> and R<sup>2</sup> taken together form a second bond between the carbon atoms bearing R<sup>1</sup> and R<sup>2</sup>, provided that when n is 1, R<sup>1</sup> and R<sup>2</sup> are each hydrogen;

R<sup>3</sup> is —COOH or —COOR<sup>4</sup>;

R<sup>4</sup> is an alkyl or aryl moiety;

15

A, B, and D are the substituents of their rings, each of which may be different or the same, and are selected from the group consisting of hydrogen, halogens, alkyl, hydroxy, and alkoxy

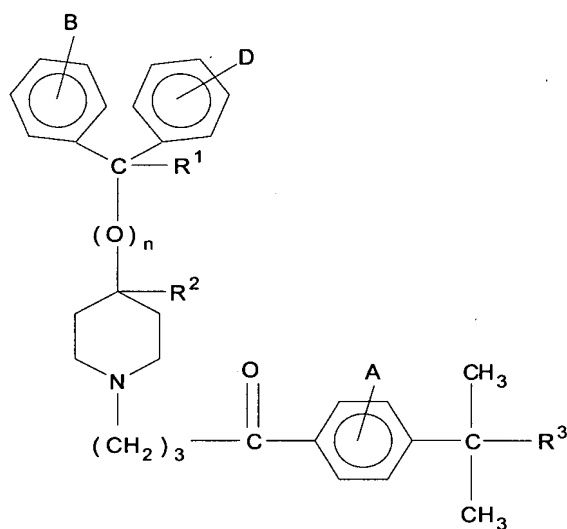
, said process comprising:

incubating a starting compound having a structure according to

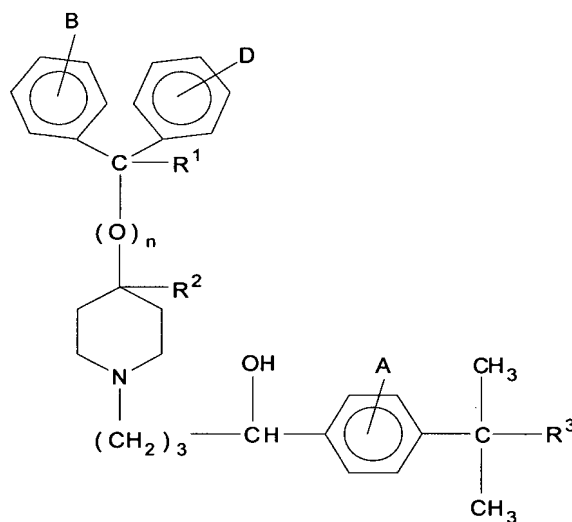
Formulae IIA and/or IIB:

20





(IIA)

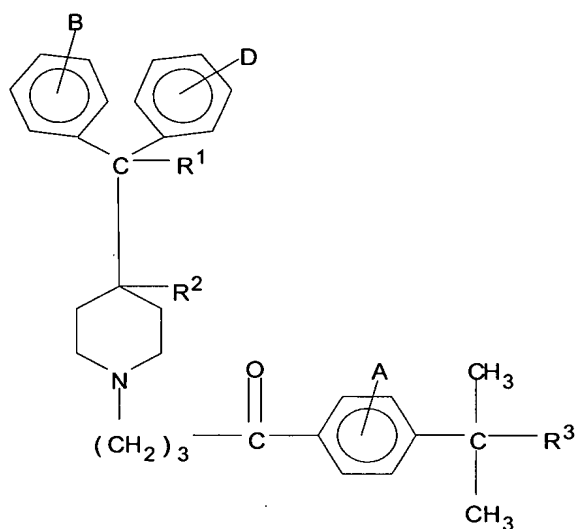


(IIB)

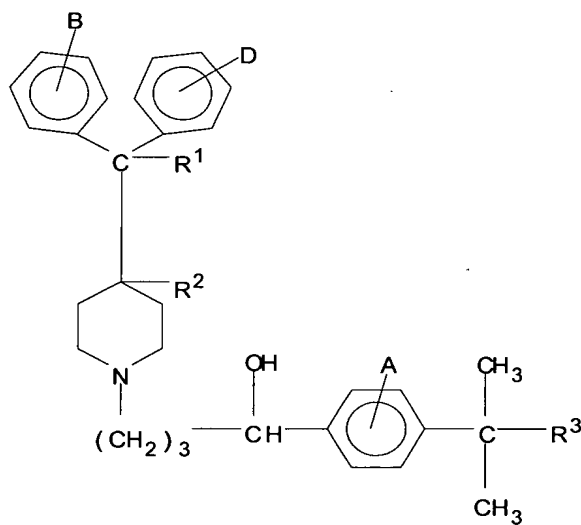
5

wherein  $R^3$  is  $-\text{CH}_3$  and  $R^1$ ,  $R^2$ , A, B, and D are defined above  
in the presence of *Cunninghamella bainieria* under conditions effective to produce the  
10 product compound.

25. The process according to claim 24, wherein the product  
compound has a structure according to Formulae IIIA and/or IIIB:



(IIIA)



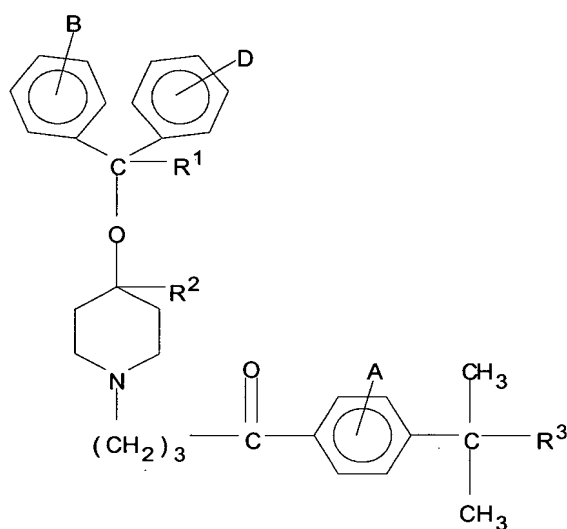
(IIIB)

wherein R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, A, B, and D are defined above.

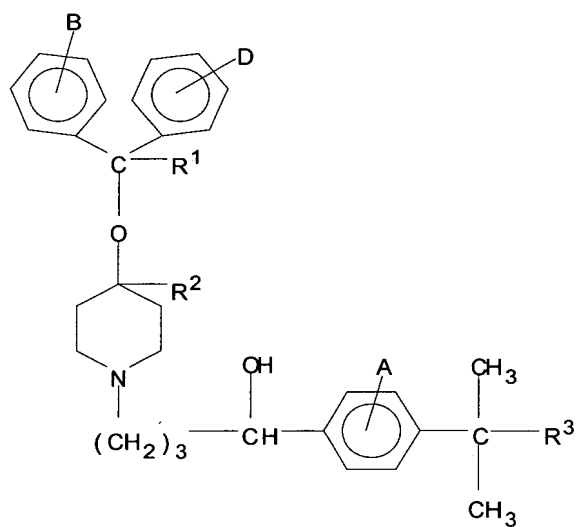
10

26. The process according to claim 25, wherein the starting compound is 4-(4-(4-hydroxydiphenyl)-1-piperidinyl)-1-hydroxybutyl)- $\alpha,\alpha$ -dimethylphenylacetic acid.

27. The process according to claim 24, wherein the product compound has a structure according to Formulae IVA and/or IVB:



(IVA)



(IVB)

wherein R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, A, B, and D are defined above.

28. The process according to claim 27, wherein the product compound is 4-[4-[4-diphenylmethoxy)-1-piperidinyl]-oxobutyl]- $\alpha,\alpha$ -dimethylphenylacetic acid.

5                    29. The process according to claim 24, wherein said incubating is carried out at a temperature of 20°C to 80 °C.

30. The process according to claim 24, wherein said incubating is carried out at a pH of 4 to 9.

10

31. The process according to claim 24, wherein said incubating is carried out for a period of 2 to 240 hours.

15                    32. The process according to claim 1, wherein prior to said incubating, the microorganism is subjected to cryopreservation or multi-stage liquid culture induction.